June 22, 1960

Memo For Record

This is an attempt to summarize the present status of aerial surveillance as applicable to the gathering of strategic and technical intelligence.

At present four methods of obtaining reconnaissance information are under consideration.

1. The U-2
2. Improved manned aircraft.
3. Low altitude recovery type satellite.
4. Higher altitude read-out type satellite.

We would like to suggest a fifth possibility but, before doing so, it is advisable to discuss these four to determine why a fifth might be desirable.

The U-2. Undoubtedly the U-2 program has furnished extremely valuable information. There is a critical need to continue this type of acquisition but, diplomatically and politically, it might not be advisable. We are not certain whether the U-2 was actually shot down from operating altitude or whether a flame out or similar malfunction forced a descent to within range of missiles or aircraft. The ratio of successful to unsuccessful flights would seem to discount such troubles, but they have occurred. Politically it might be undesirable to send a man again on an over-flight at this time. Further the range requirements necessitate the use of bases on territory belonging to our allies and within range of the USSR. The threat to fire on such bases cannot be entirely discounted. One alternative is to carrier base the U-2. Certainly the aircraft should be able to take off from a carrier, and it should be possible to either modify the plane or the carrier snubbing technique to permit landing. Perhaps the Air Force and the Navy could act in harmony on such a problem. The other solution, immediately available, is to turn the aircraft over to "volunteers" working for [redacted] 25X1
25X1 [redacted] and at least we could maintain our surveillance [redacted] How- 25X1
ever, except in desperation, we cannot hope to obtain all of the information we need in this fashion.

An improved manned aircraft should be ready for operation in late 61 or early 62, but two questions remain unanswered: Do we dare use a man again? Is the altitude high enough for consistently safe operation?

Recovery type satellite. The best ground resolution we have been able to predict from the known state-of-the-art for recovery is six to eight feet. This is not adequate for strategic

and/or technical intelligence. Furthermore the whole operation is extremely expensive. No doubt the recovery problems will be solved - although I think we should shift to recovery on land - but to date they have not been successful. Even the resolution quoted above is two years away and requires improvements in vehicles as well as cameras.

Read-out type satellite. Here the present state-of-the-art dictates, because of weight and altitude, resolution in the order of twenty feet. With more knowledge improvements can be expected, but it is doubtful if we can do better than with a recovery satellite. And the obtaining of sufficient ground resolution to satisfy our requirements for intelligence is probably out of the question.

Therefore it would appear that we have no usable way of obtaining the desired information from these four possibilities.

A fifth method - balloons - seems to merit serious consideration. It is true that the last attempt (461L) was discredited almost before it started by an unfortunate error and that the one before was not entirely suitable from a technical standpoint. Nevertheless a balloon has the great political advantage that it does not carry a man. Further it can be carrier launched and can be recovered either from the sea or from friendly territory without repercussion. It is not entirely aimable but, being relatively inexpensive, the desired coverage can be obtained through sheer weight of quantity.

There should exist some place in storage a reasonable quantity of cameras and balloons. These cameras are only 12" focal length and consequently might deliver only five foot ground resolution at best. We suggest that these might be used to fill the present gap.

We further suggest that we submit a proposal to develop a camera system for balloon use. This system should be of the convergent stereo type with the focal-length film combination determined by the permissible weight capacity of the vehicle and its expected stability as well as available power. We would have to provide attitude recording and location determining devices. An ambient light detector would be needed to control camera operation. The cameras and, in fact, all parts of the complete system should be treated to minimize radar reflection. This would necessitate extensive use of plastics and such inert materials as well as other types of treatment. Since the difficulty of detecting by radar will render us blind as well as others, it would be necessary to provide a radio transmitter which could be triggered from the ground or from aircraft. Perhaps the disconnect device could also be commanded from the ground rather than programmed.

ELG/MDG

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